



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/916,935

07/27/2001

Vittorio Castelli

YOR9-2001-0461
(8728-524)

8782

7590

08/04/2005

EXAMINER

HIRL, JOSEPH P

Frank Chau
F. CHAU & ASSOCIATES, LLP
Suite 501
1900 Hempstead Turnpike
East Meadow, NY 11554

ART UNIT

PAPER NUMBER

2129

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/916,935

Applicant(s)

CASTELLI ET AL.

Examiner

Joseph P. Hirl

Art Unit

2129

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered May 23, 2005 for the patent application 09/916,935 filed on July 27, 2001.
2. The First Office Action of February 18, 2005 is fully incorporated into this Final Office Action by reference.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "rejuvenating" is a relative term and renders the claim indefinite.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 2129

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Sweet et al (U.S. Patent 6,836,800 referred to as **Sweet**).

Claim 1

Sweet anticipates monitoring, over a period of time, a contemporaneous resource utilization and a number of active devices to obtain monitored values of the contemporaneous resource utilization and the number of active devices (**Sweet**, c 1, l 12-45; c 2, l 5-20; Figs. 8-15); and predicting the subsequent resource utilization, based upon the monitored values of the contemporaneous resource utilization and the number of active devices (**Sweet**, c 3, l 25-41; Examiner's Note (EN): para 11 applies; the number of active devices is integrated into the system operation as shown in Fig. 1).

Claims 2, 15, 16

Sweet anticipates computing a regression model of prediction parameters on the member of active devices (**Sweet**, c 6, l 58-65; EN: as determined by the sample or example); constructing an empirical distribution of the number of active devices (**Sweet**, Fig. 8); and combining the regression model and the empirical distribution to produce a prediction model (**Sweet**, c 6, l 58-65; EN: μ and σ define the model).

Claims 3, 17

Sweet anticipates step of combining the regression model and the empirical distribution comprises the step of computing, with respect to the empirical distribution,

an expected value of each of one or more of the prediction parameters (**Sweet**, c 6, l 58-65; EN: μ and σ define the model).

Claims 4, 18

Sweet anticipates for each of the one or more prediction parameters, for each of the monitored values of the number of active devices, computing confidence intervals for the one or more prediction parameters (**Sweet**, c 7, l 26-32); and selecting a corresponding one of the confidence intervals for the expected value of each of the one or more prediction parameters (**Sweet**, c 7, l 26-32; EN: such would be for the value of μ).

Claims 5, 19

Sweet anticipates computing confidence intervals for the prediction parameters, for each of the monitored values of the number of active devices (**Sweet**, c 7, l 26-32; c 8, 30-37 EN: such as a Cisco router); and combining the confidence intervals with the empirical distribution, to produce modified confidence intervals for the prediction parameters devices (**Sweet**, c 8, 30-37).

Claim 6

Sweet anticipates the step of managing a resource capacity of the computer system, based upon the predicted subsequent resource utilization (**Sweet**, c 3, l 32-40).

Claim 7

Sweet anticipates the step of rejuvenating the computer software, based upon the predicted subsequent resource utilization (**Sweet**, c 3, l 32-40; EN: planned upgrades include software rejuvenation).

Claim 8

Sweet anticipates dynamically allocating at least one resource of the computer system, based upon the predicted subsequent resource utilization (**Sweet**, c 2, l 5-20; EN: adaptive changes achieve dynamic allocating).

Claim 9

Sweet anticipates identifying any of the plurality of devices that are relevant to a monitored resource (**Sweet**, c 2, l 5-34); and restricting at least one subsequent operation of the computer system that corresponds to the monitored resource to use only devices identified as relevant to the monitored resource from among the plurality of devices (**Sweet**, c 2, l 5-34; EN: adaptive changes selects relevant devices).

Claims 10, 25

Sweet anticipates for a given device currently being evaluated for relevance to the monitored resource, computing a first regression model for the monitored resource on the member of active devices, based upon data acquired when the given device is active (**Sweet**, c 6, l 25-53; EN: such is a data sample); computing a second regression model for the monitored resource on the number of active devices, based upon data acquired when the given device is inactive (**Sweet**, c 6, l 25-53; EN: such is a second data sample); and comparing the first and the second regression models to determine whether the given device is relevant to the monitored resource (**Sweet**, c 6, l 25-53; EN: such would be the relationship between two sets of samples and the determination of covariance or correlation).

Claims 11, 26

Sweet anticipates the step of determining whether the first and the second regression models are statistically equivalent for a same number of active devices other than the given device (**Sweet**, c 6, l 46-53).

Claims 12, 27, 35

Sweet anticipates dividing the plurality of devices into device classes (**Sweet**, c 10, l 9-19); and counting the number of active devices in each of the device classes (**Sweet**, c 10, l 9-19; EN: map application contains the number of active devices).

Claims 13, 28

Sweet anticipates fitting a prediction model for a monitored resource, wherein prediction model of the prediction model depend on the number of active devices in each of the device classes (**Sweet**, c 10, l 9-19; EN: map application depends on network devices)).

Claims 14, 29

Sweet anticipates the step of computing a prediction model for the number of active devices in each of the device classes (**Sweet**, c 10, l 9-19; EN: such as the key network devices).

Claims 20, 30, 37

Sweet anticipates a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform said method steps (**Sweet**, c 3, l 25-40).

Claim 21

Sweet anticipates monitoring, over a period of time, resource utilization and a number of active devices to obtain monitored values of the resource utilization and the number of active devices (**Sweet**, c 2, l 5-20; Fig. 8-15); and identifying resource saturation, based upon the monitored values of the resource utilization and the number of active devices (**Sweet**, c 4, l 42-58; EN: signature detection establishes monitored values for the active devices).

Claim 22

Sweet anticipates identifying step comprises the steps of fitting a regression model of a monitored resource on the number of active devices (**Sweet**, c 6, l 58-65); detecting, in the regression model departures of the monitored resource from linearity (**Sweet**, c 6, l 58-65; EN: such would be the application of a Gaussian density function).

Claim 23

Sweet anticipates fitting a regression model of prediction parameters of the monitored resource on the number of active devices (**Sweet**, c 6, l 58-65); and detecting departures from linearity of the prediction parameters of the monitored resource (**Sweet**, c 6, l 58-65; EN: such would be the application of a Gaussian density function).

Claims 24, 36

Sweet anticipates identifying any of the plurality of devices that are relevant to a monitored resource (**Sweet**, c 2, l 5-20); and restricting at least one subsequent operation of the computer system that corresponds to the monitored resource to use only devices identified as relevant to the monitored resource from among the plurality of

devices (**Sweet**, c 2, l 5-20; EN: such as are necessary to achieve automatic adaptation).

Claims 31, 38, 39, 40

Sweet anticipates monitoring, over a period of time, a resource utilization and a number of active devices to obtain monitored values of the resource utilization and the number of active devices (**Sweet**, c 2, l 5-20; Fig. 8-15); and predicting the effects of adding the new device, based upon the monitored values of the resource utilization and the number of active devices (**Sweet**, c 2, l 5-20; EN: such is automatic adaptation).

Claim 32

Sweet anticipates selecting a monitored resource (**Sweet**, c 2, l 5-20); and predicting the effects of adding the new device with respect to the selected monitored resource, based upon the monitored values of the resource utilization and the number of active devices (**Sweet**, c 2, l 5-20; EN: such is the function of automatic adaptation).

Claim 33

Sweet anticipates constructing a first prediction model of a distribution of the number of active devices (**Sweet**, c 2, l 5-20; EN: such as performance thresholds for the network); and modifying the first prediction model to produce a modified prediction model of the distribution of the number of active devices that accounts for the new device (**Sweet**, c 2, l 5-20; EN: such is the function of automatic adaptation).

Claim 34

Sweet anticipates computing a first prediction model for the selected monitored resource, based upon the first prediction model of the distribution of the number of

active devices (**Sweet**, c 2, l 5-34; EN: such are application priorities); producing a first prediction of the selected monitored resource using the first prediction model for the selected monitored resource (**Sweet**, c 2, l 5-34; EN: such are application priorities); computing a modified prediction model for the selected monitored resource to account for the new device, based upon the modified prediction model of the distribution of the number of active devices (**Sweet**, c 2, l 5-34; EN: such as automatic adaptation); producing a second prediction of the selected monitored resource, based upon the modified prediction model for the selected monitored resource (**Sweet**, c 2, l 5-34; EN: trade-offs); and comparing the first prediction and the second prediction of the selected monitored resource to evaluate the effects of adding the new device (**Sweet**, c 2, l 5-34; EN: trade-offs).

Claim 41

Sweet anticipates monitoring, over a period of time, a contemporaneous resource utilization and a number of active devices to obtain monitored values of the contemporaneous resource utilization and the number of active devices (**Sweet**, c 1, l 12-45; c 2, l 5-20; Figs. 8-15); and predicting the subsequent resource utilization, based upon the monitored values of the contemporaneous resource utilization and the number of active devices (**Sweet**, c 3, l 25-41; EN: para 11 applies; the number of active devices is integrated into the system operation as shown in Fig. 1); wherein said prediction step further comprises the steps of computing a regression model of prediction parameters on the member of active devices (**Sweet**, c 6, l 58-65; EN: as determined by the sample or example); constructing an empirical distribution of the

Art Unit: 2129

number of active devices (**Sweet**, Fig. 8); and combining the regression model and the empirical distribution to produce a prediction model (**Sweet**, c 6, l 58-65; EN: μ and σ define the model).

Response to Arguments

7. Applicant's arguments filed on May 23, 2005 related to Claims 1-41 have been fully considered but are not persuasive.

In reference to Applicant's argument:

Claim 1 claims, inter alia, "monitoring, over a period of time, . . . a number of active devices to obtain monitored values of. . . the number of active devices.", Sweet does not expressly disclose monitoring "monitoring. . . a number of active devices." It follows that Sweet also does not disclose "predicting the subsequent resource utilization, based upon the monitored values of the contemporaneous resource utilization and the number of active devices," also as claimed in claim 1.

Examiner's response:

Para 11 applies. Sweet @ c1, l 66-67; c 2, 1-4 anticipates monitoring of active devices and prediction of resource utilization:

Computer resources are managed by a method that includes deriving, from historical measurement information for a computer resource, values for statistical variables, and based on the values, determining whether a behavioral pattern for the computer resource is represented in the historical measurement information.

In reference to Applicant's argument:

The Office Action states in an Examiner's Note that the number of active devices is integrated into the system operation." Additionally, the Office Action seems to argue, in another Examiner's Note, that "automatic adaptation," as taught by Sweet, implies number of active devices," as claimed in claim 1. First, such arguments are entirely speculative and are not proper under 102, which requires that each and every limitation of the claims be disclosed in the prior art. Second, such arguments seem to be based on inherency or an implicit suggestion. It should be noted that inherency must be an inevitable result and not merely a possibility. See *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). Applicants do not believe this to be the case. As such Applicants respectfully request citation to the prior art or an Examiner's affidavit establishing the basis of the Examiner's Notes and other assertions.

Examiner's response:

Para 11 applies. Appropriately, each claim and each subclaim was addressed in the First Office Action dated February 18, 2005 with reference to an appropriate prior art. A proper response by the applicant to such an office action on a point by point basis is required by the 37 CFR 1.111 and will be expected in response to this office action. Applicant should further reference paras 5-7 of the First Office Action @ page 7 and 8 related to Examiner's Notes.

In reference to Applicant's argument:

Applicants respectfully submit that signatures, as taught by Sweet, are simply data patterns of the network within given time intervals without regard to active devices. Applicants refer, for example, to col. 2, line 55 to col. 3, line 17 of Sweet, which provide two specific examples of signatures that do not address active devices. A first example teaches that "light traffic signature" For example, gathered data may indicate that data traffic during the hour of 2:00am to 3:00am is nil or very light. The light traffic signature may be used to alert a network manager if unusually high traffic occurs during that hour. A second example teaches that a signature may be used to indicate response time (i.e., the round trip of a transaction). For example, gathered data may indicate that during the hour of 10:00am to 11:00AM each weekday, a particular page on a website is almost fully retrieved in about ten seconds. The signature may be used to alert a network manager if the response time exceeds ten seconds by a significant amount. Neither example described above addresses "active devices," as claimed in claim 1.

Examiner's response:

Para 11 applies. Applicant is invited to continue reading Sweet @ c 3 lines 18-30 and reference Fig. 1 to appreciate and understand the nature of the term signature which includes computers, routers, etc. ... active devices.

Examination Considerations

8. The claims and only the claims form the metes and bounds of the invention.

"Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

9. Examiner's Notes are provided to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

10. Unless otherwise annotated, Examiner's statements are to be interpreted in reference to that of one of ordinary skill in the art. Statements made in reference to the condition of the disclosure constitute, on the face of it, the basis and such would be

obvious to one of ordinary skill in the art, establishing thereby an inherent prima facie statement.

11. Examiner's Opinion: Paras 8-10 apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

12. Claims 1-41 are rejected.

Correspondence Information

Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anthony Knight can be reached at (571) 272-3687.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,
Washington, D. C. 20231;

Art Unit: 2129

Hand delivered to:

Receptionist,

Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

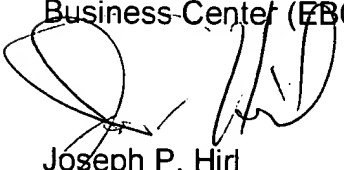
(571) 273-8300 (for formal communications intended for entry.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll free).



Joseph P. Hirl
Primary Examiner
July 19, 2005